

Recovery Around the Nation

Threatened and endangered species conservation ultimately seeks to recover listed species to levels where protection under the Endangered Species Act is no longer required. The Service's Recovery program can provide immediate actions to prevent extinction of many species, particularly those found in declining habitats.

Partners Unite to Restore the Moapa Dace in Nevada, Targeting the Invasive Tilapia and Reintroducing the Endangered Species
In Clark County, Nevada, The Nature Conservancy, Nevada Division of

Wildlife, U. S. Geological Survey's Biological Resources Division, and the Fish and Wildlife Service have begun intensive efforts to recover the endangered Moapa dace, a small, warm-water minnow, in its only habitat, the Warm Springs area at the headwaters of the Muddy River; a tributary to the Colorado River system. As part of its regional conservation planning, the Clark County Multiple Species Habitat Conservation Plan program is assisting this effort.

In 1979, the Fish and Wildlife Service established a refuge for the Moapa dace about 60 miles north of Las Vegas in northeastern Clark County. Heavily dependent on flowing warm waters for survival and reproduction, the Moapa dace is confined to streams on the Refuge and the headwaters of the Muddy River. Habitat in the river and its tributary springs has been physically and biologically modified, requiring extensive restoration. In the last decade, dace numbers have declined to about 1,000, due to habitat destruction and modification and the introduction of nonnative species.



The desert ecosystem at the Moapa Valley National Wildlife Refuge in Nevada provides habitat for the endangered Moapa dace (above, left), a species endemic to the Warm Springs area of the Muddy River. Habitat improvement goals are to restore the springs and their outflows to a naturally functioning system and replace exotic species such as these palm trees, with native vegetation such as velvet ash, gooding willow, and seep-willow.

Adding to the threat are non-native species such as the much larger African tilapia (at right), which has invaded the system and displaced the dace. Previously known as a vegetarian, the tilapia was recently discovered to be a predator when U.S. Geological Survey fisheries biologist Gary Scopettone analyzed the stomach contents of the exotic species in the Muddy River. Evidence suggests that when vegetation is scarce, tilapia consume dace. Photos above courtesy USGS



*Nile tilapia
USFDA photo*



Competition from introduced species including mosquitofish, shortfin molly and especially the highly invasive tilapia is a major factor contributing to the decline of Moapa dace. Controlling the nonnatives in conjunction with developing and implementing a watershed-based restoration program for the Muddy River will serve to recover the Moapa dace and other unique species in the ecosystem. The recovery effort will benefit four endemic invertebrates and three endemic minnows.

*"If You Build It, They Will Come:"
Red-cockaded Woodpeckers Occupy
Restored Habitat*

The site of the 1999 U.S. Open Tournament, the Pinehurst Resorts and Country Club, gained recognition for another event the same year, when a pair of red-cockaded woodpeckers produced chicks after seeking out the artificial nesting cavities installed in longleaf pine trees to attract the endangered species to abandoned habitat. The resort also managed its land for the woodpeckers by removing hardwood undergrowth.

Five years ago, Pinehurst Resorts and Country Club was the first to sign up for the "fledgling" North Carolina Sandhills Safe Harbor Program. The first of its kind in the country, this program now administers 44 Safe Harbor Agreements totaling 32,000 acres and protecting 40 groups of red-cockaded woodpeckers.

*South Carolina Statewide
Safe Harbor Program for
Red-cockaded
Woodpeckers*

The Service continues to coordinate with the South Carolina Department of Natural Resources to implement the Statewide red-cockaded woodpecker safe harbor program with 34 landowners protecting groups of the endangered birds on 117,719 acres of property. Well received by the public and the environmental community, the program is expanding to other properties.

*The South Florida Multi-Species
Recovery Plan*

The Fish and Wildlife Service has developed a long-term, far-reaching ecosystem plan to recover threatened and endangered species and ensure biodiversity in 23 ecological communities in South Florida, from the Kissimmee River to the Keys. The Multi-species Recovery Plan is designed to restore the Everglades watershed, an area that encompasses 26,000 square miles in the 19 southernmost counties in Florida,

supports 6.5 million people, and generates a \$200 billion economy.

This is one of the first recovery strategies specifically designed to meet the needs of a range of species that do not occupy similar habitats. It is also one of the first to approach recovery by addressing the needs of entire watersheds.

Home to more than 600 plants and animals considered rare or imperiled, including 68 listed species such as the

Key deer, Florida panther, wood stork, Schaus swallowtail butterfly, American crocodile, eastern indigo snake, fragrant prickly-apple, and scrub-mint, the Everglades supports a diverse array of plants and animals. With the goal of delisting 17 species during the next two decades, the Multi-Species Recovery Plan will serve as a tool for communities and landowners to develop Habitat Conservation Plans. The plan guides the Service in activities such as coordinating species recovery with other Federal agencies, State, local and Tribal governments, conservation groups, academia, industry, and private citizens and evaluating restoration successes and setbacks through ongoing adaptive management.



In the longleaf pine forests of the North Carolina Sandhills, many of the nation's best-known golf courses are participants in the Safe Harbor program for endangered red-cockaded

woodpeckers. In 1995, Secretary Babbitt visited Pine Needles Golf Club during the U.S. Women's Open to launch Safe Harbor Agreements to encourage conservation initiatives for endangered species on private lands. Less than 5 percent of the Southeast's longleaf pine ecosystems remain, much on private property.

Under the North Carolina Sandhills Safe Harbor Program, landowners enter into an agreement with the local office of the U.S. Fish and Wildlife Service to protect habitat for any

red-cockaded woodpeckers that may already be on their property and to restore or enhance habitat that additional red-cockaded woodpeckers may use. In return, landowners are assured that they will not be subject to any new restrictions if the number of red-cockaded woodpeckers increases on their property.

Photos by Susan Ladd Miller/USFWS





“With a population doubling in the next 20 years, recovery won’t be quick, or simple. But this implementation represents a shift in stewardship, from defending the landscape to replenishing it. For through this scientific blueprint, we now envision nature not as a collection of parts, unrelated to mankind, but as an evolving communion of subjects to which we belong.”

Secretary Bruce Babbitt, on the Everglades Restoration Initiative



Photos: A typical scene in the Everglades, dominated by sawgrass and water lilies (photo by Susan D. Jewell/USFWS). Garrett's scrub mint (photo © by Tom Eisner), the wood stork (photo by Barron Crawford), and Florida panther (USFWS photo), are three endangered species benefitting from the South Florida Multi-Species Recovery Plan.



Kirtland's warbler. Photo by Richard Baetson



Birders view the Kirtland's warbler on a Fish and Wildlife Service guided tour near Grayling, Michigan. The species nests only in northern Michigan after migrating from its wintering ground in the Bahamas. USFWS photo

Tourists Flock to Kirtland's Warbler Nesting Areas in Michigan

With related benefits to the economy, more than 1,500 people from all over the world flock to the jack pine forests of Michigan near Grayling and Mio each year from May 15 through July 14, to tour Kirtland's warbler breeding grounds. Birders locate territorial male Kirtland's warblers by their persistent, distinctive song, a quality that also makes possible accurate census information for the species. Annual ecotourism benefits to the area are estimated at \$500,000.

Biologists are continuing to manage habitat by conducting the prescribed burns needed to produce young jack pine stands and to remove brown-headed cowbirds that parasitize Kirtland's warbler nests. Between 1961 and 1971, Kirtland's warblers declined from 502 singing males to 201, because of the suppression of fires that historically produced the pine trees and because of the increase in cowbirds. The Service began removing cowbirds in 1972, with noticeable results the next year: parasitism on Kirtland's warbler nests was reduced from 70 percent to less than 6 percent.

In 1999, the Kirtland's warbler census reached an unprecedented 904 singing males in Michigan! Among the census participants were biologists from the

U.S. Fish and Wildlife Service, U.S. Forest Service, Michigan Department of Natural Resources, and area birders including volunteers from the Michigan Audubon Society.



The green pitcher plant is one of three federally listed pitcher plant species. Photo by Al Schotz/Alabama Natural Heritage Program

Endangered Green Pitcher Plant Recovery

In Alabama, private landowners are participating in 10-year agreements to manage their property to conserve endangered green pitcher plants. Along with helping to develop site management plans, landowners agree to protect the plants from being dug up, since collecting and commercial sale are still a threat to these carnivorous plants. The Service and the Alabama Natural Heritage Program are working together to implement recovery activities such as fencing to keep cattle out of sensitive areas and conducting prescribed burns to remove woody vegetation to maintain open areas, appropriate habitat for this species. In addition, Service and Heritage Program biologists visit the sites at least annually and gather monitoring information to track population trends.

Conservation agreements are a good vehicle to generate positive action for plants on private land and have led to more permanent protection such as easements or purchase by The Nature Conservancy. Threats to the green pitcher plant include draining its wetland habitat to construct housing or roads or use for agriculture, along with suppressing fires and allowing the succession of shaded growth.

Community Support for Leatherback Sea Turtles in Puerto Rico

Volunteers helped the Service continue its 16-year program to determine the nesting ecology and population biology of the endangered leatherback sea turtle on the island of Culebra, Puerto Rico by conducting nightly patrols of Brava and Resaca beaches to guard against poaching. Researchers tagged the nesting females to record the status of the nesting population, the length of time between nesting migrations, the number of first-time nesters, and the number of survivors. After identifying 80 female turtles and documenting more than 350 nests, biologists reported a very productive year in terms of hatching and emerging success. They are using the information to design management activities to recover the endangered species. In coordination with the College Sea Grant Program, the Service provided education and outreach activities to Culebra public school teachers and students about sea turtle biology and conservation in Puerto Rico. Starting this year, the Puerto Rico Department of Natural and Environmental Resources will conduct the program under a cooperative agreement with the Service.



Radio transmitters (like the one circled, above) help researchers better understand the migration and breeding behavior of sea turtles. At right, newly hatched leatherback sea turtles. USFWS photos



Conserving Ohio's Lake Erie Water Snake

To halt 150 years of decline resulting in small and vulnerable populations of Lake Erie water snakes, mainly due to persecution by people, the Service's Reynoldsburg, Ohio, field office and the Ohio Division of Wildlife are implementing a conservation effort composed of public education, species population-monitoring, and consultation. Both agencies are working with the Corps of Engineers, developers, and private landowners to avoid or minimize habitat loss and improve habitat for the water snake. After 5 years, these community activities are showing success.

The public information campaign involves contacting landowners, business owners, and agencies, and features brochures, media articles, and a children's poster contest in schools on Lake Erie islands to generate support for conserving this non-poisonous snake. Of 900 residents on four islands, about 175 requested and received very popular Lake Erie water snake conservation signs provided free by the Service's field office.



In mid-August through September, a female Lake Erie water snake produces about 2 dozen pencil-sized young per litter. Foraging in the water along the rocky shorelines, the snakes feed on small fish and amphibians. They spend time basking in the sun and hiding from predators under large rocks. These snakes are not poisonous and would rather escape into the water or under a nearby rock than confront a human being. USFWS photo